MONTHLY JOURNAL OF THE MUSHROOM GROWERS' ASSOCIATION

MGA

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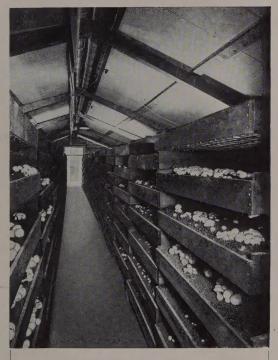
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AFTER MANY EXPERIMENTS MOST GROWERS RETURN TO



MGA BULLETIN

NUMBER 55

EDITORIAL

LET THERE BE LIGHT

Our Association, although only a few years old, has passed from the stage of being a somewhat lusty infant, to less troubled waters. In other words, we've grown up and, with this growing up process has come the partial if not complete elimination of those growers who, for fear of competition, hid their light under a bushel.

In another page of this issue Mr. M. C. Luxmoore writes.... "so that in these enlightened days a Farm Walk is commonplace and we accept the fact that knowledge may not only be freely sought but also freely given...."

Thus has the MGA passed from childhood to youth and, through this period of transition, has taken with it the many growers who, for so long denied the knowledge of others, now find that, for the asking, such knowledge is theirs. Knowledge is an achievement, not to be carefully guarded but to be shared and dispensed, not only in the undoubted art and skill of mushroom growing, but in all things. Indeed, had this not been so, the world, such as we know it to-day, would not even exist!

The MGA, through the medium of this monthly Bulletin, takes this knowledge of mushroom growing right round the world. Over the Atlantic to Canada, North America, to Mexico and down South to South America: across the Pacific Ocean to the enchanting Hawaii Islands where, who knows, the MGA may one day be organising an area meeting (and what a rush there would be for that one!)

So on to New Zealand and Australia, across the Indian Ocean and the South Pacific to South Africa, north to Kenya, to Algiers and to Israel, Hungary and through the Iron Curtain into Poland. To Italy, Switzerland, Spain, Portugal and sunny Madeira, to France, Belgium, Luxemburg, Germany, Holland, Denmark, Finland and north into Norway, and so back to our own North Sea, the Channel Islands and home to these Islands and so completing a circuit of the whole world. In the course of that circuit this Bulletin travels into twenty-six different countries or more, dispensing mushroom knowledge and, in turn being supplied by the growers and research workers of other lands with their experiences, their knowledge and discoveries, for the benefit of us at home.

Be proud then of this Association, take pride in its achievements to date and take care to see that, in future the light so spread shall continue undiminished. Take pride in what has been done, is being done and will be done and take heart in the confident knowledge that we mushroom growers in this country, like our countrymen in many other branches of industry, rank in the very forefront and that we are, as always, free to give and ready to receive.

Let us in this industry take heart, let us be confident and fearless of any outside competition, sure in the knowledge that, again as in many things, individual skill and experience will always be a sound and sure foundation. Competition is part and parcel of modern civilisation, more especially of the twentieth century. Removed by a spell of war, its return is as certain as that night follows day. Mushroom growers, like their colleagues in other sections of the industry, are prepared to face any competition. All they ask is for fair play, no more and no less.

W.R.A.

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AN APPRECIATION

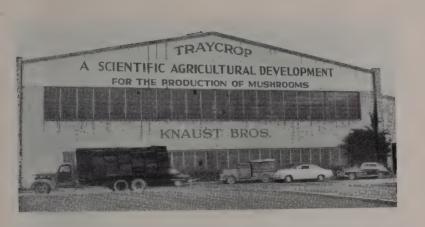
By M. C. LUXMOORE (SNOWCAP MUSHROOMS LTD.)

The editorial in the May issue made sad reading. Fred. Atkins leaves the editorial chair to join Stanley Middlebrook in semi-retirement and to these two more than any others, we owe the birth and successful infancy of our Association: an achievement which at one time seemed so improbable owing to the very reticence of mushroom growers, but which has bound us together, so that in these enlightened days a Farm Walk is commonplace, and we accept the fact that knowledge may not only be freely sought but also given.

For the last three years I have had free access to F.C.A.'s office, and being within walking distance have availed myself of this good fortune. I cannot recall an instance when he has not freely given his time to discuss my small complaints, and rarely have I passed his portals and failed to find him immersed in matters MGA. One accepts this fact and indeed no particular stir is made of paternal devotion, though the modern parent should know that the child is not always the plastic infant of one's dreams.

Added duties and responsibilites of the MRA have also been borne with equanimity, and though in both fields ably supported by members who freely give their time for the common good, there can be no doubt that the heat and burden of the day have been endured by the select few. To them and Fred. Atkins in particular our special thanks are due. The accomplishments of the past are legion and abundantly worth while.

To the new Editor already versed in the art of journalism and vicissitudes of husbandry, a hearty welcome—no man yet doubted a Winston; to the old, our grateful thanks for a dream conceived and brought to maturity—a rare and favoured genius who devoted many years pro bono publico agaricorum.



MY WAY OF GROWING

15-THE KNAUST BROTHERS, OF NEW YORK



Mr. Henry Knaust

When Mr. Henry Knaust was in England last year he said he would send us details of the way he and his brother Herman grow mushrooms. We are also indebted to Mr. Peter J. Hahn, Editor of the American Cyanamid Company's Cyanagrams, for the excellent photographs he took and which are here reproduced with his permission.

The Knaust Brothers grow mushrooms in nine caves which originally yielded limestone. Their activities in New York's Hudson

Valley are probably the biggest in the world, and their underground acreage runs into hundreds. Their output is in the region of 15,000,000 lb. annually.

They used to get all their horse manure from race tracks, and they activated it by adding calcium cyanamide at $1\frac{1}{2}$ tons to 250 tons manure, but they have recently been experimenting successfully, on a big scale, with synthetic compost.



When the manure arrives, the activator is spread on top of the stack and a crane "turns" it once.



The trays pass on roller conveyors to the Heat Room, being levelled and patted off on the way.

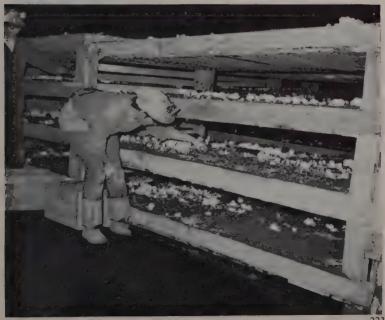


Then the manure is picked up again by the giant grab and dropped into a mobile shredding machine.

Later it is moved under cover. Gypsum and superphosphate are added and the moisture content adjusted before the trays are filled as they pass under the shredder.









It is particularly interesting to English growers to see the method of stacking the trays at this stage—no begrudged one-inchgap here.

About 15 days after pasteurization and spawning, the trays are moved on rollers to be cased with a \(\frac{3}{4}\)-inch layer of sterilized topsoil. This operation too has been mechanized; a hoist brings the soil to a machine which cases the trays passing beneath it. Then the trays are transported by lorries to the growing caves.





FRENCH OPEN DAY

Fred. Atkins visits Research Centre

The French Growers' Federation held their annual reunion at their Paris headquarters in the Rue du Louvre at 8.30 a.m., on Thursday, 3rd June, and then went on with visitors from other countries to see cropping experiments at Sèvres.

Later in the morning they visited the mushroom research station hidden away in St. Cyr. where we were all intrigued by the progress and difficulties of the giant revolving drum in which manure is transformed into compost. The current problem is to provide sufficient air during the second half of the composting period, and Monsieur André Sarazin, Chairman of the Scientific Committee, with Monsieur Trocmé, Director of Research, explained to me their plan to introduce additional air by means of fans at one end of the tonneau.

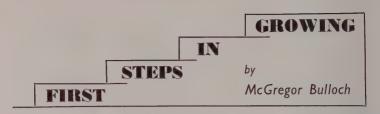
Many of the growers there are interested in the MRA formula for synthetic compost, and some are experimenting with the Tray System.

All enjoyed the excellent colour film of growing in England made two or three years ago by Messrs. W. Darlington & Sons Ltd. and Messrs. Plant Protection Ltd. It was shown in a marquee erected at the Station. Outside was demonstrated new machinery for cutting straw, breaking up limestone, and transporting manure or trays in and out of caves.

The Annual Banquet at the beautifully-sited Restaurant Cazaudehore in the Forest of St. Germain was all one could expect. I enjoyed it all the more as I was a guest of the French President, Monsieur P. Guiochon, who also had at his table the personal assistant to the Minister of Agriculture and Professor A. Willam (President of the Second International Conference), as well as many of the leading figures in the French mushroom industry.

Among the MGA members I talked to were Mr. M. C. Luxmoore and Mr. R. Duthy, from England: Messieurs G. de Man and R. Gillon, from Belgium; Monsieur J. Parmentier and Mr. E. Buttikofer, from Switzerland: and Messieurs Y. Des Noues, R. Chaumette, B. Dezarnaulds and P. Dekeirel, as well as the other French growers already mentioned. It was quite an Area Meeting, and the discussions went on as usual deep into the evening!

The following morning some of us went along to Carrières-sur-Seine to see the Sarazin developments. Extensions to the plant now enable them to produce about 70,000 cartons of spawn (Sarazin & Sobexas strains) monthly: and there is cold storage for 50,000 cylinders. A great deal of money has also been spent on adapting the caves to tray culture; and fascinating it all was, to one accustomed to small surface units of 1,000 sq. ft. on shelves, to see for example one "room" in the caves holding 28,800 sq. ft. in trays.



7-TURNING AND WATERING COMPOSTS

The beginner will invariably meet more experienced growers almost as soon as he starts his first compost, and is bound to hear of a number of different methods of preparing composts. He must remember one important rule when listening to such information. If he has not provided the conditions for an adequate peak-heat, then the manure must be turned to the point of being ready as a mushroom food, which normally means a fairly long composting period of up to a month with about four turns. If the means of achieving a peak heat are available, then almost any composting method can be used, for the condition of the manure can be corrected or cured by intelligent peak-heating, provided that the compost is still raw to some degree.

Growers frequently develop a slipshod attitude towards composting, feeling that they can save labour by taking less trouble over watering and the building of the stack. Since the compost is, after all, the source of mushroom life it is obvious that it must be prepared with all possible care. Neatness in stacking is not just a sign of a finicky love for unnecessary detail. When a stack is made with strictly vertical sides, and with these sides absolutely parallel, two important results are achieved. Firstly, by maintaining parallel walls, the cross-section at any point is the same, and the fermentation of the stack is similar along its length. This is a step nearer to achieving a uniform compost in every part of the growing shed for which it is intended. The care taken in making the walls vertical, either by careful building during turning, or by the use of a frame moved along as the heap is turned by machine, means that the sides are reasonably dense and will heat up to within an inch or two from the outside. This latter condition is helped by careful watering.

If short composting methods are employed, then soaking the raw stable manure is permissible at the beginning because the intervals between turns are short and anaerobic fermentation is not encouraged. The term anaerobic will be heard frequently, and means without air, i.e. that bacteria which are able to function with the minimum amount of oxygen will take over at the centre of the compost as soon as the available oxygen is exhausted. When normal composting is carried out, say with four turns at approximately weekly intervals, it is important to maintain an open airy condition of the compost, and a saturated compost makes this difficult to achieve. It will be apparent with, practical experience, that it is impossible to moisten fresh stable manure evenly by heavy watering with a large delivery hose after adding thick layers of litter as is frequently done. The water runs off the straw,

and a large quantity is lost by draining out of the stack as well as valuable food material in the form of urine and droppings washed out by such an application.

It is essential therefore, that when stacking, one man is available the whole time to water. The watering hose should be fitted with an efficient spray nozzle, or preferably a number of nozzles, to provide as fine a mist as is commensurate with the necessary volume of water required. Ideally, every straw should have an even coating of water in the form of droplets along its length, and the nearest way to achieve this is for the operator to move the spray continuously along the stack as it is built up from floor level, paying attention to each forkful as it is thrown on the stack. The first layer can be built up to a few inches before watering is commenced and this will help to absorb any water which may fall through as watering proceeds. At the first turn it may be found that there is not enough moisture in the compost, and the same method of watering should be adopted. In any case, if the first watering has been carried out properly, it will be found that, despite a possible low moisture content at the first turn, a very even fermentation will have taken place throughout the stack. With inefficient watering, there will be patches of soaked dark compost adjacent to dry patches with hardly any water in them at all. The final compost in the beds will be sprinkled with many unfermented straws.

We may now examine roughly what occurs in the stack during fermentation. There are four or five different areas of fermentation found in the stack, and it is assumed that these portions should be so interchanged at each turn that every part of the stack goes through the same area at least once.

By so doing, the desirable 'fire-fanged' area is passed through where the compost is capable of giving the best yields.

These areas are as follows. The top centre which is usually very wet due to moisture condensing as the warm gasses rise from the stack. Next the outside six inches or so which are comparatively dry and at a low temperature or not heated at all. The bottom centre of the stack is where the anaerobic fermentation takes place after the oxygen supply is used up, and this is usually wet, greasy and rank-smelling. At the upper centre on each side of the stack, just inside the dry walls, are the 'fire fanged' areas where the best type of fermentation occurs. The remainder of the stack is somewhere between the 'fire-fanged' areas and the top centre in condition.

It will be seen therefore that, when turning, a rough guide to the interchanging of portions is top of stack to bottom and vice versa, and outsides to insides and vice versa. A more meticulous interchange can be carried out by careful inspection of the areas concerned at turning.

The judging of the final product will come with practice. A uniform, dark, sweet-smelling compost, which will break up fairly easily when a handful is twisted in opposite directions, is what is required.

This, of course, refers to a compost which will not be efficiently peak-heated to any great extent after it is filled into the beds. Where peak-heats can be carried out, a slight rawness of material is permissible, and in fact, desirable.

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THE FRED. ATKINS ALPHABET-G

Gamasid Mite. This "red pepper" or "red spider" mite is believed to feed on other mites rather than on mushrooms, but it is unwelcome because of its predilection to congregating on the caps of mushrooms. We cannot send such mushrooms to market: we mite, but we shouldn't.

Gammexane. See BHC.

George. Our. An old friend cartooned by another old friend VEBE in that friendly journal *The Grower*. I particularly enjoyed the recent "Don't soil yer 'ands, George, fer peat's sake!"

Geotrichum. "Red Geotrichum" is the grower's term for what has more accurately but still tentatively been described as a Sporendonema. Whether this white mould with its pink rosettes actually does much damage I don't know; but it can certainly seal off the soil where it appears, and some growers regard it as a real enemy capable of reducing crops by 50 per cent.

Grading. Whether it is economic to grade your mushrooms for market depends on several factors, e.g. the system of grading adopted, whether your markets prefer graded mushrooms, and whether your mushrooms are worth grading. But there can be little doubt that one day we shall all have to grade, and the Ministry's recommendations are as reasonable as any so far published.

Greasiness. Mushroom mycelium will not tolerate a greasy compost. The rule is, if in doubt add gypsum—thanks to Pizer, who decided that the probable cause of greasiness was the excess of sodium, potassium or magnesium ions over calcium.

Green Moulds. Trichoderma viride grows in green masses over dead buttons and improperly-trashed "roots," and is often found after spraying with formalin. Both Trichoderma and Penicillium spp. have occasionally been found on grain spawn.

Ground Beds. Rarely seen except occasionally under glass and in rhubarb houses. In glasshouses, trays or portable shelving are now much more popular—and much more hygienic.

Gypsum. Hydrated calcium sulphate has many varied uses outside mushroom growing. But with compost nowadays it is almost a *sine qua non*: it not only reduces the risk of greasiness but is food for the mycelium. Usual rate is 28 lb. per ton of fresh manure.

THE MGA AT CHELSEA

By Sir OLIVER LEESE

The MGA stand at the R.H.S. Show at Chelsea was undoubtedly a success.

The day before the Show opened, I was walking down the main avenue of sundries stalls. I had no idea that the MGA was staging an exhibit, and suddenly I was hit straight in the eye by some arresting blue and white notices, proclaiming the importance of the work done by the MGA. I feel sure that the stand had the same effect on many others-for whenever I passed it during the Show, it was always a centre of public interest. The notices were clear, outstanding and



simple. You realised at once that Mushrooms were an important part of your diet and that they were particularly recommended by André Simon and Philip Harben for those who enjoy a good table. In the



forefront was the most excellent model of a tray farm, provided by Mr. Allen, of Bilting, Kent, and specially dedicated, I feel sure, to one of our best known Northern Growers!!! It was a splendid model, complete to the minutest detail with turning machines, roller conveyors (to the amazement of some, even rolling up hill!)* forks, shovels and casing material mixer. It was a beautiful little set up and we are much indebted to Mr. Allen for loaning it to us. The only photograph of Mushrooms depicted a shelf farm, and so the whole practise of mushroom growing was sufficiently befogged and bemused to put off any potential newcomer to the industry!

Hundreds of excellent pamphlets were handed out to interested callers by those MGA members who voluntarily and at considerable inconvenience, manned the stand, assisted by our energetic Secretary—"The Way of the Mushroom Grower", splendidly produced by the MGA. This was an excellent pamphlet showing most clearly the progress achieved by the Mushroom industry under the guidance of the MGA, a veritable saga of co-operation and camaraderie a fitting sequel to the secrecy and suspicion of older days which many thought then were the only prescription for success and which in point of fact we all now realise lead one nowhere. "Mushrooms month by month," giving some dozen simple delicious recipes, was also given out in large quantities. The stand was set up by Mr. Guy Reed, of Old Woking, who also designed our excellent notices.

The whole enterprise was under the control of Mr. Raymond Thompson, the Chairman of our Publicity Sub-Committee. There were some fine Mushrooms on the stand provided by Mr. G. W. Baker, who was also one of the stalwarts to provide the most excellent Mushrooms on the successful NFU stand in the main marquee. Other who supplied Mushrooms on the stand and in the marquee included Messrs. Thompson and Reed, whilst Mr. E. A. Gook also lent valuable assistance.

Finally, I know you would all like me to thank the Bradford Fertiliser Company, of Bradford, Yorks., for their courtesy, kindness and co-operation, in letting us share the stand. It was indeed a friendly action which we all much appreciated.

And now to the future. Good luck to the MGA stand, that many more friends will have a chance of visiting at the Royal and Tunbridge Wells.

Finally let us thank all the stalwarts who laid on the Chelsea stand for a good job well and truly done, a job which also included a direct effort to interest the public in spent compost.

*Whilst Sir Oliver spotted this immediately, not a single person of the thousands who inspected this model farm, commented on this point. The "farm" however, was deliberately displayed in this manner so that the general public could closely examine the turning shed, peak heat room and spawn running shed which, normally, would have been way back at the top of the slope. Nearly six thousand pamphlets were distributed in all.—Editor.

DECISION - TRY AGAIN

After a long discussion at the meeting of the MGA Executive Committee at Lindfield, Sussex, on Saturday, 19th June, prior to the area meeting and farm walk at Lindfield Nurseries Ltd., in the afternoon, the Committee unanimously decided to make a second approach to the Spawn Manufacturers on the vexed subject of a small publicity levy on each carton of spawn sold. Mr. Raymond Thompson, Chairman of the Publicity Sub-Committee, had reported that only just over forty per cent. of the Grower Members were in support of the proposed publicity levy on chips of mushrooms sold. Over fifty per cent. of the members concerned had not replied and seven per cent. had written supporting publicity but not the suggested scheme for raising the required money. This seven per cent., Mr. Thompson said, included a number of influential members who felt that a compulsory scheme such as the suggested spawn levy, which would embrace all mushroom growers, was by far the more satisfactory way of raising the money. Among other matters discussed was the future of the MGA Office at Yaxley, in view of the impending departure to Toddington of the MRA, and the arrangements for the annual Mushroom Industry Exhibition. It was reported that the NFU had agreed to request the Government to reconsider the tariff duties under the GATT agreement, following representation by the MGA, and also that the NFU had stated their intention of keeping a close watch on the import of mushrooms from Eire.

Dr. R. L. EDWARDS conducts a . . .

SURVEY OF MUSHROOM GROWING

A survey of mushroom growing practices and "troubles" was made in 1952. Some results showing an apparent relation between peak-heating and the incidence of diseases and pests have been reported in *Mushroom Science* 2, and some further observations are included in the Annual Report of the Mushroom Research Station for 1953, to be published shortly. Apart from this aspect, however, of the effect of practice on disease, there were many points which may interest growers, even though they are at the moment of no practical use.

It is reasonable to consider the returns a fair representative sample of the general body of specialist mushroom growers. The following table shows the proportion of growers who showed in their return of the questionnaire that they used the material or method, or suffered from the pest or disease indicated. They were also asked whether pests and diseases caused them serious loss or were merely a nuisance. The answers, of course, give the grower's own opinion of the extent and cause of his troubles, and his own judgment of, for example, what is heavy manure, or short composting.

The returns show that shelves still occupy first place, although trays

have gained a considerable amount of ground.

More than half the growers use racing stable manure, and about half of these fortify it. Synthetic compost and artificial casing mixtures were not widely used at the time of the Survey. Peat and ashes are about equally popular as additions to soil.

It is interesting to compare the two columns in the lists of pests and diseases. In every case where eelworms were reported they were considered to be doing serious damage, whereas springtails were merely regarded as a nuisance in five cases out of six. On this basis eelworms, cecid larvae, *Verticillium*, Truffle, and "Verdigris or Mat", are most dangerous, where they occur.

System of growing	Proportion us stated method material on	lor	Proportion using stated method or material, and othe		
Shelf beds	36%		75% 57% 16%		
Trays	25%		57%		
Floor beds	0		16%		
Manure and composting	100/		450/		
Heavy manure	18%	• •	45%		
Racing stable manure Racing stable manure fortifie	24% 12%	• •	34%		
Synthetic compost	18% 24% 12% 3%	• •	45% 54% 30% 8%		
Systematic description of					
		Proportion using			
		stated meth			
Peak heating with live steam		materia	П		
		34% 45% 18%			
Short composting (sic)		18%			
* • ,		10/0			
Casing soil		E70/			
From own site Imported soil		57% 44% 32% 15% 6% 30% 33%			
Subsoil		320/			
Steamed soil		15%			
Artificial mixture		6%			
Adding peat		30%			
" ashes		33%			
" carbonate of lime		40%			
" hydrated lime		40% 51%			
Ventilation					
by floor and roof vents		70%			
by fans		70% 39%			
Proportion of farms reporting pests and diseases	D 4		Causing serious		
Phorid and Sciarid flies	Present		loss		
Cecid larvae	· 40/ ₀	• •	21%		
Springtails	48% 32% 24% 28%	• •	22% 21% 4% 10%		
Mites	28%		10%		
Eelworms	10%		10%		
D. C.	4607				
Dactylium	46%	* *	150/		
Mycogone Verticillium	200/	• •	27% 15% 20%		
Bacterial spot and blotch	52%	• •	27%		
Bacterial Pit	36%		21%		
White Plaster Mould	2.7%	• •			
Brown Plaster Mould	30%		16%		
Verdigris or Mat disease	46% 44% 28% 52% 36% 27% 30%		28%		
Red Geotrichum	9% 28%		6%		
Truffle	28%		21%		

Fusarium Mummy disease ...

*T. BUKOWSKI, B.Sc., writes on . . .

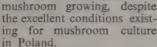




The knowledge of mushroom growing came to Poland in the 18th century. Polish magnates who visited France during that century brought with them French gardeners who started mushroom growing on their estates, but at a later period it was abandoned.

Wild edible fungi are a serious rival to mushrooms in Poland and are consumed by the people on a large scale. The yield of ceps, saffron milk caps or chanterelles amounts in Poland to thousands of tons yearly. These fungi people consume in summer and the surplus is partly dried and preserved for use in winter.

The consumption of edible fungi amounts, per person, to as much as the consumption of mushrooms in Great Britain. The excess of edible fungi in the form of dried products or preserves is destined for export. The competition of cheap edible fungi, whose cultivation incurs no cost, is the main cause of the slow development of





Before the Second World War mushroom growing was concentrated round Warsaw and engaged the attention mainly of gardeners, who considered it as a professional secret revealed only to the nearest members of the family. To-day there is no secrecy attached to mushroom growing in Poland. After the war there appeared two booklets which explained in detail the problems of mushroom growing. A plant of pure culture mushroom spawn has been established and that eliminates the necessity for importing spawn. A research station is attached to the spawn plant.

The Polish tray, 0.5 m^2 (5.38 sq. ft.) in area, differs from the English tray in that it possesses corner strengthening posts which eliminate stagnant air and allow better air circulation.

In contrast to England where special mushroom houses are built, in Poland existing accommodations are being adapted. Mushrooms are cultivated on ridge beds, on shelves or in trays, according to the character of the available accommodation. That last form is applied only in those places where mechanised production processes are possible.



Mushroom growing in Polish Trays.

Ridge beds are 2 feet wide and 1' 4" high. As they demand the use of fairly large amounts of horse manure they are perhaps not economic but the bed interior keeps warm for a longer period. Besides, the problem of obtaining horse manure is not so acute in this country as it is in England. Any quantity is obtainable and for this reason Polish mushroom growers are not worried about the production of synthetic composts.

The methods of mushroom growing in Poland do not differ from methods practised elsewhere. Some growers use the Sinden and Hauser short method of composting.

Among diseases which affect mushrooms one meets *Mycogone* and *Verticillium*, yet they do not develop into epidemics. Mites and fly larvae are sometimes a cause of trouble as they are in England.

In one of our mushroom cultures appeared a new weed fungus Volvaria volvacea (Bull. ex. Fr.) Quél., affecting the yield seriously.



Pleurotus passeckerianus pilát and Volvaria volvacea (Bull. ex Fr.) Quél. on infected beds.

As to prices, the Polish consumer pays as much as the English consumer does if we compare the price of 1 ton of manure (cost of delivery included). In winter time the Polish consumer pays for 1 kg. (2·2 lb.) of mushrooms a price equal to $\frac{1}{4}$ of a ton of manure. The position of the producer is more favourable in this country than in England for here he buys 1 ton of manure delivered for the equivalent of 5 kg. of mushrooms.

*Mr. Bukowski, a Batchelor of Science, was responsible for the introduction of pure culture mushroom spawn into Poland. He is Director of a Mushroom Spawn Plant. He is the author of numerous works on mushrooms and it is he who keeps the MGA supplied with Polish mushroom literature. For our part we return the compliment by sending him, among other things, the Bulletin every month.

We are also indebted to the Polish Ministry of Agriculture for allowing these

notes of Polish mushroom growing to be published.

NOTES FOR YOUR DIARY

6th—9th July. Royal Agricultural Show, Windsor—MGA Stand

in NFU tent.

Farm Walk and Discussion at Mr. H. G. Bird's farm, Long Meadow, South Heath, Gt. Missenden, Bucks.

2 p.m.

4th Sept. Scottish Farm Walk and Area Meeting, Albethy, Bridge of Allan, Stirlingshire (Mr. W. S. Galbraith).

7th—18th Sept. British Food Fair, Olympia, London. MGA Stand with the Essex Farmers' Union Stand.

6th—7th Oct. Annual Mushroom Industry Exhibition and MGA Annual meeting, Tunbridge Wells.

30th Oct. Area meeting and Farm Walk, Shadowlawn Products, Kimcote, Rugby. (Mr. N. R. Cooper), 2 p.m.

THE NOTTINGHAM FARM WALK



A very interesting Area Meeting and Farm Walk was held at Frearson Mushroom Farm, New Eastwood, Nr. Nottingham, on Saturday, 29th May. On this occasion members were the guest of Mr. A. J. Bentley. Over 60 members and friends were present including the celebrated experts, Messrs. Atkins and Middlebrook. The chief officers of the MGA were unable to be present as they had been busy during the week with Mushroom Publicity at the Chelsea Flower Show. The committee, however, was represented by two newer members, Mr. N. R. Cooper and Mr. F. Bleazard.

Mr. Bentley has a highly efficient unit of some 7,000 sq. ft. on shelves and 2,000 sq. ft. in trays. He only started growing in 1950. He has successfully converted some farm buildings into mushroom sheds. As these are brick buildings with good thick walls, they are not subject to the temperature variations of some mushroom structures. The whole plant is heated by a low pressure steam boiler fired with an automatic stoker and thermostatically controlled. The peak heating is done by live steam and gilled tubes, and braziers are used if the compost is wet. The composting is done in an open yard with a power fork and manure loader, and steamed soil is used for casing.

Mr. Bentley and his son-in-law were most genuine in their welcome and freely answered all questions *re* their methods of cultivation. When everyone had had a chance to look round, tea was provided at Mr. Bentley's expense. † Members were asked however, to make a small contribution in appreciation, which would be passed on to the Publicity Committee.

After tea, a discussion took place and various members gave their opinions and experiences.

The use of peat as a casing medium was discussed and the general conclusion appeared to be that peat is no better than a good proved casing soil, but where the obtaining of suitable soil is difficult and costly, the peat is cheaper and more satisfactory. Mr. Bleazard said that in his view, he could not see how peat could be sterile. It was fundamentally a surface material, porous and subject to the various water table levels in the bog or marsh where it was dug. He stated that he used peat, but steamed it, and dare not risk doing otherwise.

The difference between the soft southern chalk and the hard northern limestone was discussed. Some northern members said they used ground limestone to mix with the peat, as soft lumpy chalk is more expensive to obtain.

*Mr. Bleazard of Blackpool, Lancs., is a member of the MGA Executive Committee.

A long discussion took place on Publicity. Some doubt was expressed as to its value. The maintaining of high prices only encourages newcomers into the industry and leaves the gate wider open for imports. One member expressed the view that the money collected would be put to better use if it was used in showing the grower how to produce cheaper mushrooms. Another said that he would like to know how the money would be spent before he contributed. The committee and other members present however, appealed to the meeting to at least give it a trial, pointing out that the cost of the scheme is so little per pound, that only a small increase in demand would more than cover it.

The committee members were asked to do everything possible regarding Tariffs on Imports. Mr. Atkins stated that the French were increasing their production and would most certainly export more to England in the future.

Trays versus shelves came in for its usual debate and apparently a lot depends on the type of growing sheds available as to which is the best method.

The advantages and disadvantages of the short and long composting methods were given by the respective advocates.

In answering a question, Mr. Atkins said that at the moment, Synthetic Compost is dearer than horse manure owing to the latter being cheaper and more plentiful at present. Synthetic Compost however, had other advantages.

At the close of the meeting, Mr. Bleazard thanked Mr. Bentley on behalf of the MGA for arranging the walk, and throwing his farm open for inspection, and thanked his son-in-law, Mr. T. Bubes.

†A cheque for £4 10s. 0d. was subsequently received from Mr. Bentley as a contribution to the Publicity Fund.



MAC'S MUSHROOM FAMILY

7. The Hon. Algernon Agaricus

MUSHROOMS AT 8,550 FEET



Among Yaxley's many recent visitors was 43 year old Alfred Beck who, for the past few years, has been growing mushrooms with varying success at his plant, "El Champinal," Bogata, Colombia, South America, some 8,550 ft. above sea level.

Mr. Beck, who represents the well-known German firm of Zeiss, whose wide range of optical instruments are world famous, first went to Colombia in the late 1930's to represent his firm there. He returned to his native Germany after the war and in 1949 once again departed

for Colombia where he has remained since as the firm's representative.

For some considerable time before actually starting growing on an experimental scale, Mr. Beck, like so many others, rather toyed with the idea for, at Bogata several others had tried and, with one exception, had all failed. The exception—a Dutchman after getting going, decided to return to the Netherlands.

With no growing experience to help him, Mr. Beck decided, in the end, to try growing on a very small scale "from the book" and his first crops were successful enough to encourage him to grow on a somewhat larger scale. But alas, as has been the experience of so many others, the second cropping experiment was something of a failure. However, with a temperature of 14 degrees centigrade (60 deg. F.) going up to 80 deg. during the day and down to 44 at night, Mr. Beck tried again with 6" and 4" compost beds, made to the Yaxley synthetic formula as set out in Fred. C. Atkins' "Mushroom Growing To-day," which a friend brought him from New York, and reasonable success followed. However, no sooner was this problem overcome than the source of supply of the dried blood gave out. So he replaced the dried blood of the Yaxley formula by a corresponding amount of Urea, but failure again followed until, acting on advice from Dr. Stoller, he dissolved the Urea in cheese-whey before adding it to the straw (with trace elements and other ingredients according to the Yaxley formula). This compost gave fairly satisfactory results but had a strong tendency to dry out owing to its very open texture. More recently brewers' grains have been incorporated as a nitrogen source and Mr. Beck, all in all, is pretty well satisfied with this make-up. Chalk and gypsum ground to a powder are readily available and, for casing, the second spit of soil, on the spot, has proved satisfactory after pH adjustment. He composts—with five turns—in about three and a half weeks.

Mr. Beck now has around 4,000 sq. ft. under mushroom cultivation, housed in four brick sheds with double asbestos roofing and heated by hot water. Of his total area, 1,000 sq. ft. is devoted to trays, "but not to the tray system of growing," said Mr. Beck. Four complete crops are taken a year and the yield, on both trays and shelves, averages about ·6 lb. per sq. ft. "Not very much by your standards, but I sell mushrooms and stalks all together and the price, with low labour costs, compensates for the rather low yield," Mr. Beck said, adding, that he is able to sell all he produces and is repeatedly asked for more. "I have plans to expand but, before doing so, I badly wanted to have a look round some of your farms to see just how everything was done," he said. Later Mr. Beck added "I have been very greatly impressed with what I've seen, with you and my visits to Noble Mushrooms and Mr. Middlebrook, and I hope to be able to do something about increasing my yield when I get back." He twice tried peak heating but this proved an absolute failure, "If you do not account for the wonderful crops of Coprinus," he said. Now he plans to try again—this time with live steam and aeration during the process. "I get some trouble with Springtails and Eelworm, but it hasn't been very serious so far," he said.

One of Mr. Beck's main problems is, naturally enough, how to arrest a sharp moisture reduction in his growing houses, due to the climate and high attitude.

Six months ago, Mrs. Beck took over the mushroom growing business and, in the words of Mr. Beck, "She manages it all very well and supervises all the growing and marketing." "It seems the mushrooms like her too."

The Beck's and their four children live in delightful surroundings at Bogata. "I have no desire to return to Germany to live, for my wife and I and the children are very happy where we are," he said.

At 8,500 feet above sea level, Mr. Beck must be among the highest growers in the world. Can anyone go higher?

Finally, Mr. Beck had this to say of the MGA, "It is a fine organisation and it has been of immense help to me. The Bulletins are full of information to growers. Without them and the yearly reports I would still be far from where I am now." W.R.A.

WAGE CLAIM REJECTED

The Agricultural Wages Board on 14th June, rejected the latest claim of the farm workers in England and Wales for a "substantial" increase in their minimum basic wage of £6 for a 47-hour week.

Representatives of the National Union of Agricultural Workers and the Transport and General Workers' Union expressed "disgust" at the rejection.

ITEMS OF INTEREST

Monsieur P. Guiochon, president of the French Federation, wrote in the French Bulletin for February, 1954: "All mushroom growers are ingenious and more or less handymen. And I am sure those of you who adopt the Tray System will draw on the characteristic French talent for making a little go a long way."

Results (from peat casing) are quite satisfactory and the Mushrooms are, on the whole, cleaner.

East Scotland Correspondent, The Grower, 13.2.54.

On the whole it must be said that scientific research organizations probably took much more trouble to try and acquaint industry with the results of their discoveries than industry took to try and find out what was going on.

The EARL of HALSBURY, speaking in London on 26.11.52.

"Every additional ton of food we can raise from our own soil means a potential saving on **imported food** without sacrificing the nation's standard of living. Every pound we can save by making fuller use of our own productive resources is a pound released to increase industrial earning power in other directions," said Mr. J. K. Knowles, N.F.U. General Secretary, at Durham. N.F.U. News Sheet, 15.1.52.

I want to make it plain once and for all that the farmer and the grower stand side by side. Our strength as an industry lies in its unity. The grower is not a "forgotten man," and those who think that way simply show how far out of touch they are with the true facts of the situation. Sir JAMES TURNER in N.F.U. News Sheet, 9.10.51.

The mushroom is surely one of the most versatile delicacies we know. There is hardly any savoury that is not improved by its unique and subtle flavour, while served as a dish in its own right it is unsurpassed.

R. W. HOW in *Good Housekeeping*, September, 1952.

I am ashamed to say that I have contributed little more than my wholehearted moral support to MGA with its excellent little publication spreading over such a large area of the world a feeling of mutual sympathy and understanding in the problems of modern mushroom cultivation. I am very interested in your publicity campaign as every problem in UK is multiplied out here. Breaking down old-fashioned prejudices, no peeling, methods of cooking, etc. Mushroom roadhouses are an excellent idea. Also badly needed are ideas on small scale canning, soup making and bottling and ketchup making.

JOHN C. WAKELYN-KING, New South Wales.

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Continued on back cover

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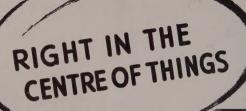
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